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PATENT COOPERATION TREATY



Translation

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference DS410WOCHBKG	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/IB2003/003780	International filing date (day/month/year) 22 August 2003 (22.08.2003)	Priority date (day/month/year) 07 October 2002 (07.10.2002)
International Patent Classification (IPC) or national classification and IPC F15B 13/00, 21/08		
Applicant BUCHER HYDRAULICS GMBH		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 13 March 2004 (13.03.2004)	Date of completion of this report 07 December 2004 (07.12.2004)
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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/IB2003/003780

I. Basis of the report

1. This report has been drawn on the basis of *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

☐ the international application as originally filed.

☒ the description, pages 1-8, as originally filed,
pages _____, filed with the demand,
pages _____, filed with the letter of _____,
pages _____, filed with the letter of _____.

☒ the claims, Nos. _____, as originally filed,
Nos. _____, as amended under Article 19,
Nos. _____, filed with the demand,
Nos. 1-7, filed with the letter of 29 October 2004 (29.10.2004),
Nos. _____, filed with the letter of _____.

☒ the drawings, sheets/fig 1/3-3/3, as originally filed,
sheets/fig _____, filed with the demand,
sheets/fig _____, filed with the letter of _____,
sheets/fig _____, filed with the letter of _____.

2. The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/fig _____

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims	1 - 7	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1 - 7	NO
Industrial applicability (IA)	Claims	1 - 7	YES
	Claims		NO

2. Citations and explanations**1. Reference is made to the following documents:**

D1: WO 01/18763 A (FESTO AG & CO; STANICZEK DIETER (DE)) 15 March 2001 (2001-03-15)

D2: WO 01/77534 A (WALDECK CHRISTIAN; FESTO AG & CO (DE); FUSS MARTIN (DE); LEDERER T) 18 October 2001 (2001-10-18)

D3: DE 100 12 405 A (MANNESMANN REXROTH AG) 20 September 2001 (2001-09-20)

2. Novelty

Since the combination of features in independent claim 1 is not disclosed in its entirety in any of the search report citations, the subject matter of claim 1 and of dependent claims 2 to 7 is novel (PCT Article 33(2)).

3. Inventive step

The present application does not satisfy the criterion of PCT Article 33(3), because the subject matter of claims 1 to 7 does not involve an inventive step.

3.1 Regarding independent claim 1

Claim 1 is unclear (PCT Article 6). In particular, it is not made clear which features form part of the claimed subject matter. For the purposes of the substantive examination it was assumed that the consumer, the job computer and the at least one sensor do not form part of the claimed subject matter, since they appear to be linked to the claimed control device only by virtue of a use of said control device.

3.1.1 The assessment of the application is based on a comparison between the technical features as stated in the claims and the technical features in the known prior art, since the scope of an invention is determined by the claims.

D3, which is considered to be the closest prior art, discloses (references in parentheses relate to said document; cf. the passages indicated in the search report and fig. 1 to 3):

Control device for a hydraulic system, whereby a valve (11) controlling a consumer can be controlled, a bus (33) and bus interfaces (32) being arranged between a job computer (34) and the valve (11), wherein there is associated with the consumer at least one sensor (24, 26), the signal whereof has to be taken into account in the control of the consumer by the control device, an autonomous controlling element (17, 18) being arranged between the bus (33) and the valve (11) and the autonomous controlling element (17, 18) being provided

- with a bus interface (33),
- with a micro-controller (16, 27) connected thereto,
- and with (...),
- to which there can be connected the at least one sensor (24, 26), which is a (...) sensor, and the controlling element (17, 18) being structurally combined with the valve (11).

3.1.2 The subject matter of claim 1 differs therefrom in that the autonomous controlling element is provided with an analogue-to-digital converter and the sensor is an analogue sensor. D3, by contrast, does not describe where the analogue-to-digital conversion of the sensor signals takes place prior to digital further processing.

3.1.3 This permits the use of ordinary, inexpensive analogue sensors.

3.1.4 Theoretically, the analogue-to-digital conversion in D3 could be carried out by an analogue-to-digital converter integrated into the sensor or into the control device or by a separate analogue-to-digital converter arranged between the sensor and the control device. The use of analogue sensors with analogue-to-digital conversion in the control device, especially, is common in the prior art (see, for example, D1: page 7, line 9). A person skilled in the art would consider this solution and, applying it to a control device as defined in D3, would arrive at a control device as defined in claim 1 without thereby being inventive.

3.2 Regarding dependent claims 2 to 7

Dependent claims 2 to 7 do not appear to contain any additional features which in combination with the features of any claim to which they refer back could yield a subject matter involving an inventive step. The reasons are as follows:

The additional features of claims 2 to 7 relate to the spatial arrangement of individual components of the control device and to the design of the plug-in units for the connection of the power supply, bus and sensors. These are simple design measures without inventive merit. These features are disclosed in D2 or are obvious to a person skilled in the art in the light of that document (cf. the passages indicated in the search report).

A person skilled in the art would therefore consider it standard procedure to combine with each other all the features in each of claims 2 to 7.